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**NASA CONTRACTOR REPORT 177374**

**CRAYCDC**

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**CRAYCDC**

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## Section 1

### Purpose

CRAYCDC is a FORTRAN subroutine to convert 64 bit binary data from a Cray Computer (1S or X-MP) to the corresponding 64 bit binary data for a Control Data Corporation "Cyber 2XX" computer. It runs on the CDC "Cyber 2XX".

## Section 2

### Usage

The entry point to the subroutine is CRAYCDC. To call the subroutine use the following FORTRAN statement:  
CALL CRAYCDC (NWORDS, VECTIN, VECTOUT, ITYPE, IERROR) where the arguments have the following definitions:

NWORDS	The number of CRAY words to be converted. Must be integer.
VECTIN*	Is a vector of CRAY words to be converted to "CYBER 2XX" format. VECTIN may be Real or Integer.
VECTOUT*	Is a vector to receive the converted words. This vector is the result and is in "CYBER 2XX" format (binary). VECTOUT may be Real or Integer.
ITYPE	Is a value which specifies the type of conversion. (see Table I). ITYPE must be integer.
IERROR	Is a value assigned should an error be detected (see Table II). IERROR is an integer.

Table I - Conversion Options

<u>ITYPE</u>	<u>Definition</u>
1	Integer conversion of CRAY to "CYBER 2XX".
2	Real conversion of CRAY to "CYBER 2XX".

---

**\*Note:**

VECTIN and VECTOUT may be the same vectors.

Table II - IERROR (error codes returned)

<u>IERROR</u>	<u>Definition</u>
0	No error
1	Argument value of NWORDS is incorrect. NWORDS must be a positive integer.
2	Argument value of ITYPE is incorrect. Value of ITYPE must be an integer of 1 or 2. (see table I)
3	Cannot convert a real variable. VECTIN value was indefinite or out of range. Result stored in VECTOUT is set to 63 one bits. (a "CYBER 2XX" indefinite.)
4	Cannot convert an integer variable. VECTIN was too large or small to convert to "CYBER 2XX" format. Result stored in VECTOUT is set to 63 one bits. (a "CYBER 2XX" indefinite.)

---

Notes: When IERROR is returned to calling modules with a value of 1 or 2, the call to CRAYCDC was aborted and no conversion attempted. VECTIN and VECTOUT remains as called.

When IERROR is returned to calling module with a value of 3 or 4, words which were convertible were converted.

### Section 3

#### Storage

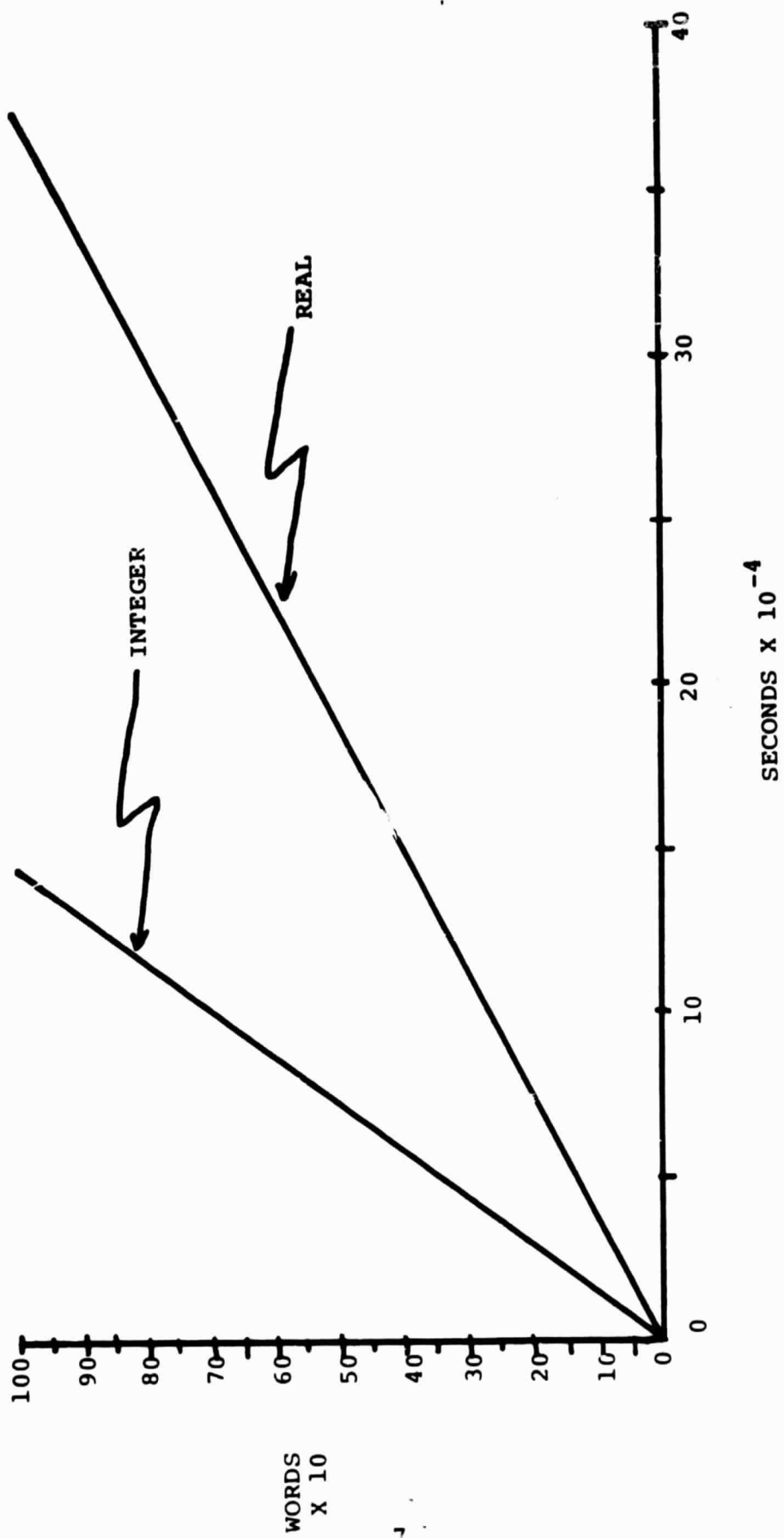
This subroutine requires 1FD Hex or 509 decimal words of "CYBER 2XX" memory.



## Section 4

### Timing Consideration

For each group of fifty integers converted from CRAY binary to CYBER 2XX binary approximately 0.00070 seconds are required. Approximately 0.00188 seconds are required to convert fifty real binary numbers from the CRAY internal format to the CYBER 2XX internal format. The following graph illustrates these timings.



## Section 5

### Access to CRAYCDC

To link the library containing the subroutine CRAYCDC on the ARC Cyber 205 the user needs only to make an entry on the LOAD statement in the job control sequence.

LOAD,user lfn,LIB=SOFTLIB,users other info.

## Section 6

### Example

Convert a vector of 512 integers from the CRAY to a vector of integers for the "CYBER 2XX". In this example ICRAY is a vector of integers to be converted to a vector of integers named ICDC.

```
DIMENSION ICRAY(512),ICDC(512)
:
:
ITYPE=1
KOUNT=512
CALL CRAYCDC(KOUNT,ICRAY,ICDC,KTYPE,IERROR)
IF(ERROR.NE.0) Go to error processing
:
:
END
```

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